DRAFT SOW: KSC RAIL SYSTEM OPERATIONS

Introduction:

This request for information (RFI) is for services that will be needed to conduct the operations of the Kennedy Space Center (KSC) rail system and the National Aeronautics and Space Administration (NASA) rail assets from the Jay Jay Yard holding site in Titusville, Florida, to various areas on KSC. The KSC rail system is required to transport the Space Launch System (SLS) solid rocket boosters that will be delivered and staged at the Jay Jay Yard site from the manufacturer in Utah via rail. There are approximately 40 miles of rail track on KSC property of which only 32.5 miles of track are considered active and will be used for this requirement. The KSC rail system incorporates tight turns compared to off-site, mainline tracks. NASA will offer two small switcher locomotives that were used in the past to navigate the KSC rail system and if interested, can/will provide these assets to the vendor for use for that purpose. These locomotives, if the contractor chooses to use them, *may* be used to meet other contractor needs at locations off-site as well [Federal Acquisition Regulation (FAR) 45 shall apply), however, NASA requirements/mission schedules under the contract resulting from this effort must be the priority of the switcher locomotives[1].

Booster & Spacer Railcar Transport Description and Requirements:

The requirements in this RFI are based on NASA SLS Program requirements. The current schedule plans for one mission per year, beginning in calendar year 2016, that will require two fully stacked boosters per mission.

Initial Support Requirement:

The contractor shall provide all necessary resources to perform all movements of KSC rail assets as specified herein. The contractor shall follow Department of Transportation (DOT) Transportation Regulations[2]. The operational steps that follow assume that the vendor will utilize the NASA offered switcher locomotives and begin initial operations at the Locomotive Maintenance Facility (LMF). Switcher locomotives are required on KSC due to the tight turns indicated above. NOTE: if the contractor does not intend to utilize the switcher locomotives offered, the contractor must describe in detail the concept of operations utilizing contractor's existing switcher locomotives to navigate the KSC rail system and its availability to meet the NASA requirements described herein.

- The contractor will arrive via highway transport at the LMF, hook-up two water tanker cars with the KSC locomotive, and relocate those cars to the Suspect Siding storage site. (5.9 mile one way transit)

[1] The locomotives are part of the NASA, KSC Railroad System Historic District. Any modifications to them must be coordinated with the NASA Historic Preservation Officer by submitting a KSC Environmental Checklist to the Environmental Management Branch.

[2] The DOT mandates that spacer cars be between each Booster Segment car for the transit from the manufacturer site in Utah to the Jay Jay Yard site. Two additional spacer cars are required between any locomotive used and the first Booster Segment car for crossing the Jay Jay Bridge due to weight restrictions.

  - For firefighting/safety requirements, the two NASA water tanker railcars must be staged at the Suspect Siding storage site prior to the arrival of any booster segments.
  - This task will invoke the use of manual track switching to track spurs for staging.
- Utilizing the same locomotive, proceed to, and hook-up all the railcars at the Jay Jay Yard site and transport all 10 booster segments along with the 11 spacer cars as a single unit over the Jay Jay Bridge to the East Wilson Yard staging site. (6.3 mile one way transit)
  - This is typically a "one movement" operation; however, there may be scenarios where two or more lower segments arrive prior to the bulk of the segments.
- At the East Wilson Yard, the contractor is required to separate the spacer cars from the segment cars and return all spacer cars as a single unit back to the Jay Jay Yard site *immediately*. (6.3 mile one way transit)
  - This task will require multiple use of manual track switching from mainline to spurs.
- Once the spacer cars are in place at the Jay Jay Yard, return to the East Wilson Yard to hook-up and relocate the booster segment railcars to the Suspect Siding storage site. (8.0 mile total transit)
  - This task requires one manual track switching from the spur to mainline.

<u>Follow-on Railcar Movements On-Site:</u>

The contractor shall provide all necessary resources to perform the follow-on hook-up and delivery of individual segment railcars and movement of other railcar assets, as needed.

- Hook-up and deliver each booster segment railcar individually (or in pairs, if directed) from the Suspect Siding storage site to the Rotation Processing and Surge Facility (RPSF). (4.5 mile transit – 5 or 10 trips)
  - This task will require multiple use of manual switching from mainline to spurs.
- After each booster segment is off-loaded in the RPSF, the contractor will re-hook the emptied segment railcar from the RPSF and deliver each to the LMF until all 10 emptied segment cars are staged. (1.4 mile transit – 5 or 10 trips)
  - This task will require multiple use of manual track switching from mainline to spurs.
- Once the last emptied booster car is moved to the LMF, hook-up and transport all empty segment railcars from the LMF and deliver to the Jay Jay Yard for shipment back to Utah. (12.5 mile transit)
- The contractor shall return the two water tanker railcars from the Suspect Siding storage site to the LMF after all empty booster segment cars have been delivered to the Jay Jay Yard. This completes movements for one mission. (13.7 mile transit)
- In addition to the SLS booster & spacer railcar transports, the contractor shall provide appropriate resources to hook-up and transport the NASA Aft Skirt railcar (1 each)from the LMF to the Jay Jay Yard for off-site use (12.5 mile transit). Currently the destination and frequency for this movement is not known. NOTE: the contractor is requested to indicate an estimated charge for this movement in its RFI response.

Contingency Movements – Emergency Evacuation:

In the event of an emergency (fire, flood, hurricane, etc.) or when deemed appropriate by NASA, the contractor shall provide all necessary resources, at a minimum of 24 hours' notice, to hook-up and transport rail assets to alternate locations on the KSC's rail system or off-site, as directed. The KSC on-site hurricane staging area is located at the Roberts Road site. Off-site transits will be coordinated when conditions dictate a better safe haven than KSC can offer.

General KSC Rail Systems Operational Restrictions:

- Speed limit on the rail system is 25 miles per hour (MPH) except as noted below.
  - Reduce speed in congested areas, over switches, and other situations as prudent.
  - On the Indian River Jay Jay Bridge, maximum speed is 5 mph.
  - A speed limit of 5 mph must be observed on locomotive maintenance facility service tracks and railcar shop tracks.
- Rail Operator shall always be prepared to stop within 1/2 range of vision.
- Extra caution shall be used at all public road crossings (5 each), particularly when moving hazardous materials, such as booster segments. Some of these public crossings are pedestrian trail crossings with no barricades or signals.
- Opening rail gates and highway traffic control at Suspect Siding and all other road crossings are the responsibility of the KSC Security Office. The contractor shall contact the KSC Security Office to coordinate/schedule assistance prior to initial operations.

NASA KSC Available Assets and Rail Elements:

- Two (quantity: 2) GM SW1500 switching locomotives with 1500 horse power
- Two (quantity: 2) standard water tanker railcars
- One (quantity: 1) NASA Aft Skirt railcar - specifically modified railcar to transport the Aft Skirt
  - Aft Skirt railcar movements are currently unknown and should not be included in the contractors' RFI cost estimate.
- Thirty-six (quantity: 36) manual-type track switches between Schwartz Road and the Jay Jay Bridge. Operators must use caution to ensure the switches are in the correct position for intended routes.
- Ten (quantity: 10) individual crossing signals between Schwartz Road and the Jay Jay Bridge. NOTE: *none* of the crossing signals are equipped with barricades.

KSC rail assets are currently parked at the LMF.

Switcher Locomotive - 2 ea

Water Tanker Railcar - 2 ea

Aft Skirt Railcar - 1 ea

The picture below depicts six Booster Segment railcars with spacer cars and one of the NASA locomotives traversing the Jay Jay Bridge.

The pictures below depict some sections of the active rail system and railcar staging/storage sites on KSC. The maintenance and repair of the tracks and other items associated with the rail system will be maintained and repaired in compliance with the Unified Facilities Criteria (UFC) 4-860-3, Railroad Track Maintenance and Safety Standards requirements.

General Section of KSC Track

Main and Side Track Staging at West Wilson Yard Site

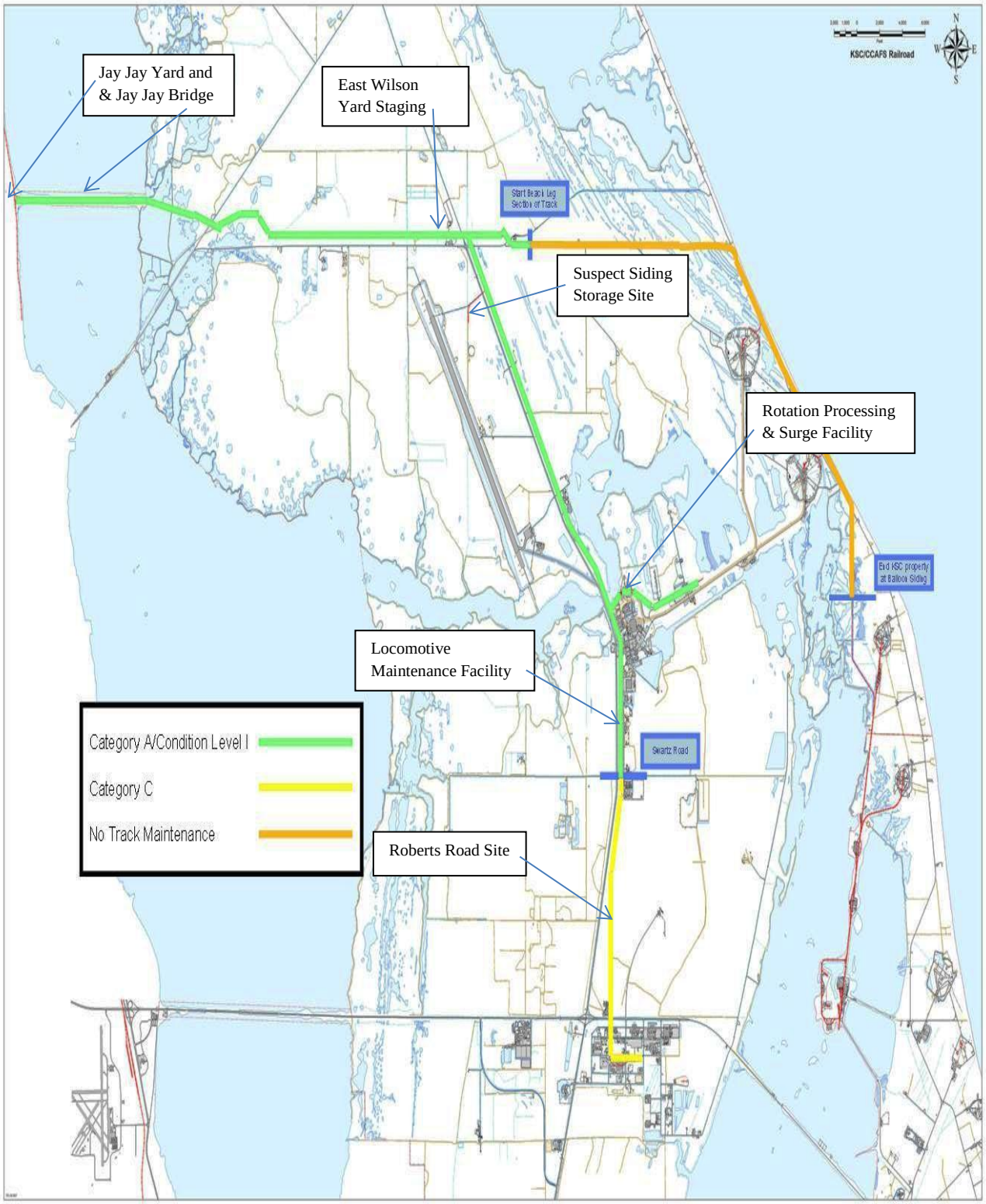
Track section leaving the north side of the Locomotive Maintenance Facility

Manual Track Switch Operations

Hazardous Materials Transportation Information:

The SLS booster segments (also known as Rocket Motors) are classified as a Hazardous Material as defined in the Code of Federal Regulations (CFR), 49-CFR. If deemed necessary, NASA will provide the contractor with any/all DOT shipping documentation for the transport of the booster segments within the KSC boundaries. The documentation for the initial shipment from Utah to the Jay Jay Yard is prepared and provided by the manufacturer/shipper in Utah. These booster segments are classified as a DOT Class 1.3 explosive for compliance with the Transportation Regulations. Each individual booster segment railcar will be properly marked/labeled in accordance with 49-CFR.

Rail System Operational Geography:



Other Rail System Key Elements:

Jay Jay Bridge in Up Position

Jay Jay Bridge in Down Position

Suspect Siding Booster Segment Car Staging Site

(RPSF) – The "Shuttle Wagon" shown is not available.

LMF

Mainline track switch to 3 spurs at East Wilson Yard Staging Site